File Copy

Forest Land as an Investment in New England

Do investments in New England forests bring a rate of return commensurate with the risks of ownership? How do they compare with similar investments in the Lake States and the South? About 94 per cent of the 30.7 million acres of forest land in New England is privately owned and many of the individual and corporate owners have asked and are asking these questions.

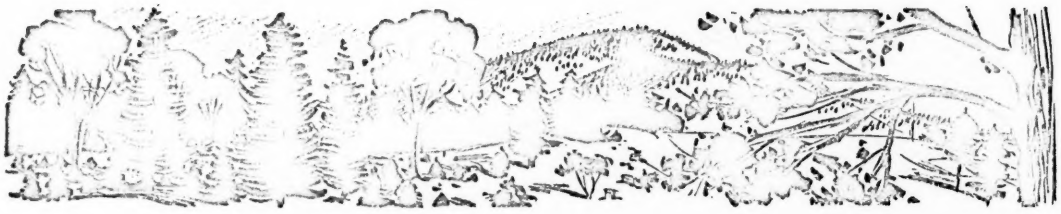
The answers depend upon the type and location of the land. In parts of southern New England, markets for forest products are very poor and forest land is high priced and heavily taxed. This land is a poor investment unless the owner simply enjoys owning rural property or is primarily interested in it for recreational or residential use. On the other hand, much of the forest land in northern New England is more moderately priced and taxed and is close to better markets.

To learn more about the profitability of forest ownership in this region, the Federal Reserve Bank of Boston made a research grant to Professor Frederick Amling enabling him to interview and collect detailed financial information from owners of more than 19 million acres of forest land in northern New England, the Lake

(Continued on page 2)

Also

Personal Income at All-Time High in 1955, *Page 6.*
The Automobile Market: Credit Expands Although Sales Dip, *Page 7.*
Business Conditions, *Page 8.*



States, and the South.[1] The following information on growth rates, market prices for forest products, property taxes, fire protection costs and management costs in northern New England, the Lake States and the South has been abstracted from Professor Amling's data.[2]

Growth Rates

Many factors affect the value of timber land but none is more important than the capacity of the land to grow wood. Any potential investor needs to obtain accurate growth rate information before making a decision to buy.

The table below shows that most of the landowners interviewed in northern New England believe their growth rates are much lower than those in the South and the Lake States.

ESTIMATED GROWTH ON TIMBERLAND, 1953

Region	Number of Owners	Number of Acres (thousands)	Growth in cords/acre/year		
			Weighted Average	High	Low
Northern New England	21	7,048	.19	.47	.10
South	28	8,914	.60	.80	.08
Lake States	8	1,510	.31	.59	.17
All Regions	57	17,472	.41	.80	.08

However, these growth statistics are not representative of these regions for three reasons:

(1) Most of the landowners in the South quote growth rates primarily on fast-growing pine land, but the New England owners base their estimates on all types and sites of forest land. If all land in the South were compared with all land in New England, the growth estimates would be much closer together.

(2) Many New England owners give figures based strictly on spruce and fir and ignore the growth of hardwood trees because of the limited market for hardwood species.

(3) The larger New England landowners have traditionally judged their growth rates to be low. Therefore, their estimates tend to be more conservative than those of owners in other regions.

These statements are supported by U. S. Forest Service statistics which show that the forest land in the states of New Hampshire, Vermont and Maine has an average growth of .36 cords per acre per year, whereas land in the South is supporting a growth of .50 cords and forest land in the Lake States averages .28 cords per acre per year. These figures are based upon a random sample of all types of ownerships (farmers, government and corporate) on all commercial forest land (hardwood and softwood) in northern New England, the South, and the Lake States. Professor Amling's growth estimates, on the other hand, come from the larger private owners and are weighted most heavily by owner estimates from the northern part of Vermont, New Hampshire, and Maine. The two different sets of growth figures are not strictly comparable, but it is obvious that forest land in New England is much more productive than the figures in the above table would indicate.

Of even more significance, however, is the range of growth rates within New England, the South, and the Lake States. Much of this variation is due to the inherent capability of the land, but the intensity of management is also extremely important. Millions of acres of pine land in the South could produce one cord per acre per year. Likewise the annual growth could be doubled on large acreages of forest land in New England if management determined that the expense was justified.

Markets for Forest Products

Forest growth rates are not meaningful to an investor unless they are related to prices. For this reason, the existing and potential markets for wood products must be considered by the potential investor in forest land.

Although the species and type of timber being sold are prime factors affecting prices, other factors are important. For example, prices are high or low depending upon the number and the capacity of the wood using plants bidding for raw material in an area.

[1] Dr. Amling, an Assistant Professor at the School of Business Administration at Miami University, Oxford, Ohio, has just completed the task of organizing and summarizing his findings in a Ph.D. thesis for the Graduate School at the University of Pennsylvania.

[2] In northern New England, owners were interviewed in Maine, New Hampshire and Vermont; in the South, in Alabama, Arkansas, Florida, Georgia, Louisiana, North Carolina, Tennessee, and Virginia; and in the Lake States, in Michigan, Minnesota, and Wisconsin.

The following table suggests that the prices in the South are generally higher than they are in the Lake States and northern New England.

STUMPAGE PRICES FOR FOREST PRODUCTS SOLD AND HARVESTED BY OWNERS, 1953

Region & Type of Owner	Number of Owners	Price in $ per Cord*
Northern New England	19	4.83
Pulp & Paper	9	4.75
Lumber & Veneer	5	8.60
Landowner	5	3.47
South	22	5.83
Pulp & Paper	12	5.11
Lumber & Veneer	6	10.00
Landowner	4	5.14
Lake States	9	—
Pulp & Paper	7	3.17
Lumber & Veneer	1	insufficient data
Landowner	1	insufficient data

*All saw-timber volume converted to cords. 500 board feet assumed to be the equivalent of one cord.

Other figures from Professor Amling's thesis demonstrate, however, that price differences within each region are much more important than average variations between regions. In Maine, for example, spruce pulpwood stumpage is twice as valuable as similar hardwood stumpage. Also, hardwood trees suitable for sawtimber or veneer logs are much more valuable per unit of volume than the smaller-sized hardwood trees.

These few commonly known facts demonstrate that to determine prospective yield the investor in forest land must consider the type and amount of wood his land can produce and then relate the productivity of his land to his best estimate of present and future markets for this wood.

Timberland Operating Costs

Cost figures for operating forest land on a sustained yield basis are also significant to the potential buyer. Operating costs, when subtracted from operating income, provide net income figures which can be used to determine the rate of return on the capital investment.

The chart on this page shows that New England timberland owners are spending much less to operate and maintain their forest capital than are owners in the Lake States and the South. These facts can best be explained by examining each of the three major cost components.

Property taxes represent the largest item of expenditure for the New England owners and the second largest for the owners in the Lake States. Southern owners pay the highest tax bill on a per acre basis.

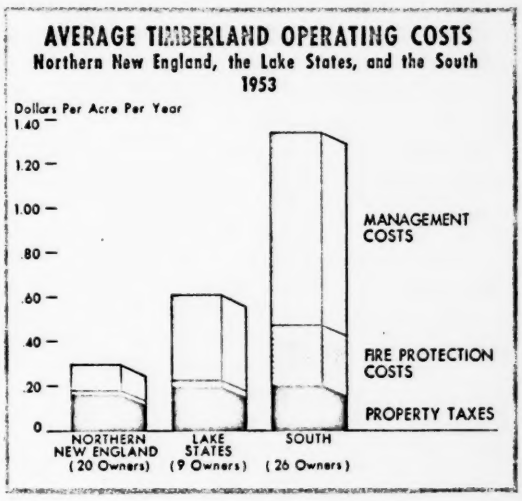
But property taxes measured on a per acre basis can be misleading. If one type of land is twice as productive as another type and each has identical property taxes, it is apparent that the better land has the lesser tax burden. It is probable, therefore, that owners of pine land in the South are taxed at a slightly lower level than forest owners in northern New England and the Lake States.

This conclusion should also be qualified because of different levels of government services in these regions. Professor Amling found, for example, that many owners in New England and the Lake States believe that state expenditures for fire protection are sufficient to protect their land. Consequently, they do not feel obliged to spend their own money on fire protection.

These property tax figures also reveal large variations in the tax burden (on a per acre basis) within each region. This situation is due in part to differences in land productivity and/or timber size and quality, but much of it can only be explained by differences in assessment policies and levels of taxation between localities. However, one New England state—New Hampshire—generally assures equitable treatment to all owners of forest property by levying a 12 per cent yield tax on timber at the time of cutting rather than a property tax on standing timber.

Fire protection costs are relatively insignificant for most New England landowners, but are a much more important cost element in the South. The average New England owner paid only $.015 per acre per year to protect his property in 1953. Southern owners typically paid about $.27 per acre per year and some paid up to $.40.

The principal reason for these regional differences is the varying danger of loss from fire. The percentage of forest land burned over every year is much higher in the South than in New England or the Lake States. Also, state governments in New England have assumed much of



the responsibility for fire protection.

Management costs proved to be one of the most difficult statistics for Professor Amling to gather. Many pulp and paper companies classify timber marking costs as a management expense while individual landowners usually call it a logging cost. Similarly, some landowners consider tree planting an expense even though most owners capitalize such reforestation costs.

In general, those reporting considered the activities coming under the jurisdiction of the forest manager as a management expense. These cost items include inventorying, timber marking and sale, boundary line marking, road construction and maintenance, and general supervision of cutting operations.

The chart on the previous page shows that northern New England owners have by far the lowest average management costs. The difference between average costs in New England and the Lake States is small compared to the difference between New England and the South. The underlying statistics show that the southern pulp and paper concern which was spending least for management when the interviews were made was still spending considerably more than any similar concern in New England on this cost item.

This extreme variation in the level of management expense is partly due to the fact that southern concerns are in the process of acquiring land, and inventorying, mapping, and boundary marking costs are high at this time. Also, much pine land in the South needs constant attention if hardwood encroachment is to be controlled. This is usually not the case for spruce and fir in northern New England. The most important reason is that southern owners are practicing a much more intensive type of forestry on their pine lands in order to increase growth rates. Unfortunately, most of the southern owners who were interviewed held only pine land and there is no information available on how much they are willing to spend on hardwood management.

It is apparent that New England owners have not felt justified in spending much on their spruce and fir and hardwood lands. The abundance of forest land in this region in relation to the capacity of wood using plants may explain this situation. If so, it is likely that when plant capacity is expanded in the future more intensive management will be used to increase production on New England's forests.

Net Operating Income

When Professor Amling calculated net operating income figures from the financial data given to him by forest owners he discovered an extreme range of results. The figures for one lumber company in New England show a return of $4.00 per acre per year and for another, a loss of $.23 per acre per year. Similarly, one pulp and paper company in the South has a net income of $2.25 per acre per year while another concern in the same region shows a net loss of $1.86 per acre per year.

The explanation is simple—some owners cut much more than others. However, most of the forest land owners do not cut all their growth. A large majority of those interviewed own wood utilization plants and hold forest land to protect their future raw material supply. For that reason, they are building up their growing stock at the expense of current income. The average New England owner cuts 63 per cent of his conservative estimate of growth, while the average owner in the South cuts 55 per cent. The average percentage cut for those interviewed in the Lake States is only 27 per cent. Obviously, net operating income figures under these conditions are meaningless as a measure of profits.

Professor Amling points out that a more accurate measure of profitability would be the market value of all the annual growth on forest land under a program of sustained yield management. He also emphasizes that sustained yield management must be defined in terms of the type and volume of timber which is growing on the land. It is possible, for example, for a forest owner to grow as much as he cuts, but to neither cut much or grow much because only unproductive tree species are left after he logs.

Professor Amling demonstrates that net annual operating income can exceed $5.00 an acre on the better pine land in the South if: (1) The growth rate is 1.1 cords per acre per year and (2) the wood product can be sold at an average price of $5.83 a cord and (3) operating costs average $1.34 an acre each year. Then, net operating income would be 1.1 x $5.83 − $1.34 or $5.07 per acre per year.

In most areas, however, growth is less than 1.1 cords per acre and net income of $5.00 a year cannot be realized unless very high quality products are produced and costs are kept low.

Timberland Appraisal

The statistics gathered by Professor Amling suggest that the net operating returns on forest land in all three regions are positive but relatively low. It is apparent, therefore, that forest land makes a good investment only if it can be acquired at a moderate cost which will permit the owner to earn a satisfactory rate of return. Accurate forest land appraisals are an absolute necessity if the potential investor is to make an intelligent decision.

Professor Amling found that owners of forest land in northern New England are much more cautious in making appraisals than are owners in the South and the Lake States. In 1954 few New England owners placed more than a nominal value of $1.00 an acre for forest land exclusive of any timber and most of them added less than another $1.00 if the land was well stocked with unmerchantable trees. In the South, land was often valued at $10.00 to $12.00 an acre and land stocked with unmerchantable trees was valued at $5.00-$8.00 more. Moreover, purchasers in the South and the Lake States usually were willing to pay full market value for all the merchantable timber on the land. In New England, buyers generally applied a 33 1/3 per cent discount on the market value of the timber.

Professor Amling's figures suggest that northern New England buyers are justified in making these conservative appraisals if the typical growth rates are as low as they judged them to be. However, if the land is actually considerably more productive, greater values might be allowed.

Rates of Return

The following table presents the best judgment of 33 large landowners in New England, the South, and the Lake States as to what rate of return they expect to receive in the future on their present investment in land and timber.

ANTICIPATED RATES OF RETURN, 1954

Region	Number of Owners	Anticipated Rate of Return (before taxes) Average %	Range	
			High %	Low %
Northern New England	12	5.91	10	2
South	15	8.73	27	5
Lake States	6	3.22	6	1

Professor Amling's calculations show that these average rates of return cannot be obtained by a majority of the owners in the South and by many owners in New England *unless* the previous growth rate estimates given by them are greatly exceeded and/or there are sizable price increases. It is likely that many landowners are counting on both of these eventualities.

Although these estimated rates of return in the South and New England are fairly high for individual owners, it must be remembered that a forest landowner always runs the risk of having a loss from fire, windstorm, insects and disease. In addition, the New England owner who owns a large tract usually cannot obtain a reasonable price for his property if he attempts to dispose of it quickly. On the other hand, timberland prices can be expected to move up with the general price level during inflationary periods.

The above estimated rates of return are very low compared to the returns most corporations have been earning during the last ten years, but earnings from forest investments cannot always be viewed in the same light as returns from other corporate investments. Net operating income from forest ownership can usually be treated as a capital gain under Section 117K of the Internal Revenue Code. This can give individuals in the higher income brackets and corporations a very large tax reduction.

Also, most firms depending upon wood for a raw material do not view their forest land in the same way as they do their investments in plant and equipment. Undoubtedly, many operators would prefer to depend on independent producers for raw materials if they could be assured of a supply at a reasonable price for all time. But there is a limited supply of land in the vicinity of each mill and prices — particularly sawlog prices — will probably rise in the coming years. Moreover, if a competitor buys land in the purchasing area of a mill, part of this raw material supply is permanently lost. Most mills are forced to acquire forest land not only to protect their existing supply of materials, but also to give themselves flexibility for possible future expansion.

Conclusions

Much southern pine land is producing more wood and is near better markets than is the typical acre of spruce, fir, or hardwood land in northern New England. Nevertheless, forest ownership in this region can be just as profitable as it is in the South if the original investment is lower and relatively good growth rates are maintained without great expense.

The most important lessons to be learned from Professor Amling's study are that intelligent decisions about forest investments are virtually impossible without reasonably accurate growth rate, market price, and operating cost information and that regional statistics are not very helpful to the investor because local conditions are extremely variable.

Personal Income at All-Time High in 1955

Personal income climbed to new highs in all of the New England states in 1955, reflecting the record level of business activity in the region.[1] The situation was much the same throughout the country; only six states failed to set new income records and most of these were in agricultural regions where farm income declined sharply. In New England, farm income, though relatively small, rose substantially during 1955 and gave an added boost to the region's income flow.

The total personal income of New Englanders amounted to $20,075 million in 1955, a gain of six per cent from the 1954 level. Maine showed the largest relative gain of the New England states with a rise of 11 per cent, which was exceeded only in Alabama, Nevada and North Dakota. Connecticut and New Hampshire equaled the national increase of seven per cent, Massachusetts and Vermont had gains of six per cent, and Rhode Island five per cent.

The strong surge in personal income in Maine underscores the importance of the potato industry to the state's economy. Whereas nonfarm income in the state rose six per cent in 1955, just matching the New England average, farm income soared 140 per cent above the depressed 1954 level as potato prices strengthened and Maine growers produced a bumper crop. New Hampshire also showed a healthy 12 per cent gain in farm income, but in the other New England states, changes from 1954 were small. Nationally farm income fell five per cent from 1954 to 1955. The pattern of change in nonfarm income was very similar throughout New England during 1955 with all of the states showing gains between five and seven per cent. Nationally nonfarm income rose seven per cent.

Wage and salary disbursements by manufacturing firms, which are the principal source of personal income in New England and the nation, rose six per cent during 1955 in New England and nine per cent nationally. New Hampshire posted the region's largest gain in manufacturing payrolls amounting to nine per cent. Vermont recorded the smallest gain — four per cent. In the other New England states the factory payroll rise equaled the regional gain of six per cent.

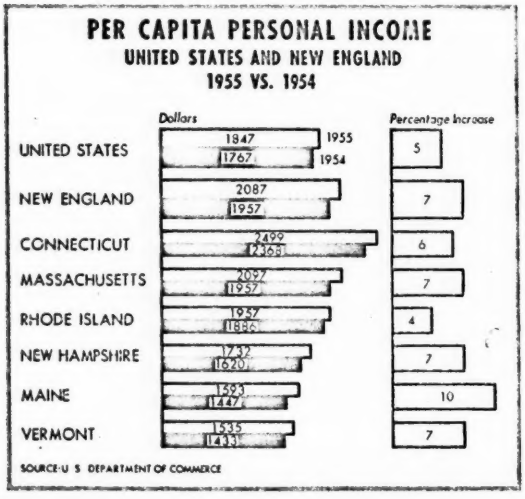
Trade and service industries in New England paid out seven per cent more wages and salaries in 1955 than in 1954, compared with an eight per cent increase nationally. State gains in such payments ranged from five per cent in Vermont to eight per cent in Connecticut.

Contract construction payrolls showed larger relative increases in several of the New England states than in the country as a whole during 1955. The over-all rise for the region amounted to 15 per cent as against seven per cent for the nation. Again New Hampshire led the region with a 23 per cent increase. Next came Massachusetts with a plus 17 per cent, while Connecticut and Vermont were up 14 per cent. Rhode Island matched the seven per cent rise of the nation and Maine showed a three per cent gain.

Reduced to a per capita basis, personal income data for New England show even larger percentage gains in 1955. Revised but unpublished population estimates used in arriving at per capita figures indicate that New England's population declined slightly between 1954 and 1955, whereas the nation's population rose two per cent. Partly because of the drop in population, New England's per capita personal income rose seven per cent in 1955, the highest gain for any region of the country and well above the national gain of five per cent.

New England's per capita personal income averaged $2,087 in 1955, 13 per cent above the national average of $1,847. As shown in the accompanying chart, income per capita ranged from a high of $2,499 in Connecticut to a low of $1,535 in Vermont. The only state in the country having a higher per capita income than Connecticut was Delaware with $2,513.

[1] Income estimates used in this article were recently released by the U. S. Department of Commerce in *Survey of Current Business*, August 1956. A more comprehensive bulletin on personal income by states is scheduled for publication in a few months.



The Automobile Market:

Credit Expands Although Sales Dip

Contrasting patterns have marked 1956 developments in the automobile sales and credit markets. New car sales in New England as in the nation were down substantially from year-ago volumes, as shown in the accompanying chart. Credit extended for car purchases, however, showed almost no decline, as financing by time payments increased in relative importance. Markedly larger repayments on outstanding auto purchase debt kept the aggregate level from rising as rapidly as last year.

Sales of 1956 model automobiles in the nation at the beginning of the new model year last November and December exceeded those of a year earlier, partly because of the earlier introduction of 1956 models. By January 1956, however, the sales rate fell below that of a year ago, and the divergence widened as the year progressed. By June, new car sales, as measured by registrations, were 21 per cent below June 1955, while sales for the first half of 1956 were down 12 per cent from the similar 1955 period.

The 1956 model changeover period was short, and production of this model quickly rose to a high rate in the fall of 1955. Car assemblies in November and December substantially exceeded even the large volume of sales, and by the beginning of 1956, new car inventories were at high levels. Although monthly production rates were cut back over a third between November and April, new car inventories on May 1 stood at over 900,000 units according to *Automotive News,* some 100,000 units above the level at the beginning of the year. Subsequently, production was reduced further so that by September 1, inventories totaled only 500,000 units.

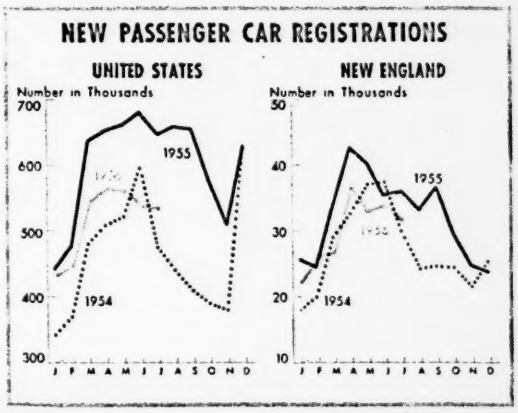
New car sales in New England showed much the same pattern as in the nation during the first half of 1956. For the six months as a whole, New England sales were down 12 per cent, the same amount as in the nation.

Automobile instalment credit activity in the first half of 1956 contrasted with sales developments. Although new car sales in the nation were down substantially from the rate in the first half of 1955, the amount of automobile credit extended remained almost at the year-earlier level. A larger proportion of sales in 1956 was financed by credit, maintaining the volume of credit extensions. Without this increased reliance on credit, new car sales might well have been down even more. Instalment credit terms generally had been eased in the summer of last year and the same eased terms generally prevailed during 1956.

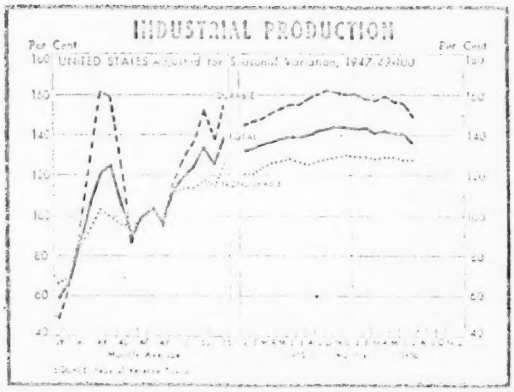
Repercussions of the large growth of automobile instalment credit in 1955 were felt in 1956. Even though new car sales declined, consumer outlays for present and past car purchases were greater in the first half of 1956 than in the similar 1955 period. These larger outlays resulted from the one-third higher level of automobile instalment credit outstanding in the nation at the beginning of 1956. Repayments on this debt totaled about $7.6 billion in the first half of 1956 -- about $1 billion more than a year ago. Only partly offsetting these larger debt repayments was the lower level of aggregate cash down payments on auto purchases as a consequence of reduction in sales volume and eased credit terms. Thus credit developments had opposing effects on car sales in 1956 compared to 1955 -- eased terms compared to the first half of 1955 tended to bolster sales, but larger repayments on the higher level of debt were a dampening influence.

Judging from member bank loan portfolios, automobile instalment credit activity had much the same pattern in New England as in the nation. Although the level of this credit in the region increased less in the first half of the year than in 1955, extensions remained at the same level but repayments were substantially larger.

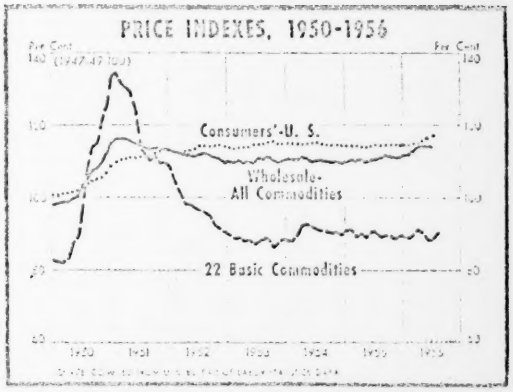
Used car sales thus far in 1956 declined little from last year in the region as in the nation. With fewer trade-ins on new cars, supplies of used cars tended to be more limited, and prices have been well maintained. Dealers' stocks were at low levels at midyear.



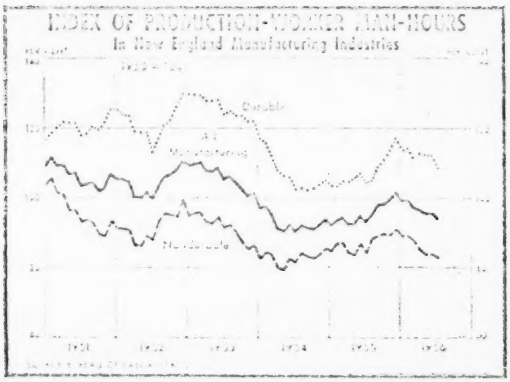
Business Conditions



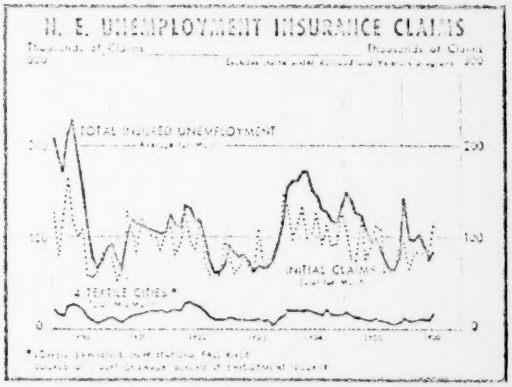
The adjusted index of production dropped from 141 to 136 between June and July because of the steel strike and related cutbacks. Output of durables other than primary metals rose during July, however, while nondurables maintained high levels.



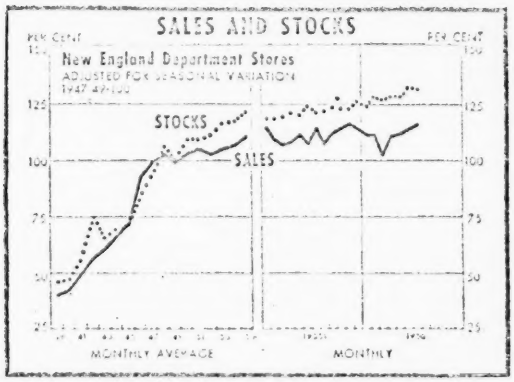
Consumer prices rose in July to an all-time high, in the first major rise in over five years. Wholesale prices have dropped since May, while spot-commodity prices rose slightly above the year-ago level in August, after declining since April.



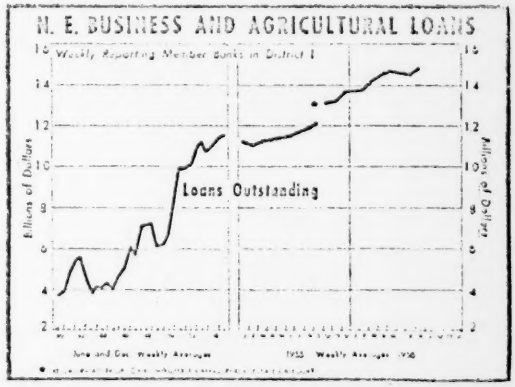
The index of production-worker man-hours declined in New England in July with seasonal vacation shutdowns but was still at the highest July level since 1953. Both the durables and nondurables indexes fell off from the June level.



Initial claims for unemployment insurance compensation rose in July with vacation shutdowns. The level reached was the same as that in July 1955. Insured unemployment reflected the summer upswing but was still 16 per cent below the year-earlier level.



The adjusted index of New England department store sales rose in July to 116, equaling pre-Christmas highs of 1955 and two per cent above last year's level. Stocks also remained high.


N. E. BUSINESS AND AGRICULTURAL LOANS
Weekly Reporting Member Banks in District 1
Billions of Dollars
Millions of Dollars
Loans Outstanding

Business and agricultural loans in the New England district rose in August to the highest level yet reached in 1956. Since October 1955, when real estate loans were reclassified, the level has risen 13 per cent.